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angular quantities which appear in their mathematical work subject to one of the conditions mentioned.

I feel some confidence from the serious consideration which I have given to the question, that not only cannot this be shown, but that I have clearly shown the converse to be true. These proofs can be made absolutely rigorous, but they necessarily become somewhat long and formal if every elementary step has to be given.

Note on Newcomb's Tables of the Sun. By A. M. W. Downing, M.A., D.Sc.

Remarking on the large annual term exhibited in the comparison of Le Verrier's and Newcomb's Solar Tables, printed in the supplementary number of the *Monthly Notices* (vol. lv.), Professor Newcomb has pointed out to me that the definitive correction to Le Verrier's value of the eccentricity of the Earth's orbit for 1900, as found in his *Elements and Astronomical Constants* and adopted in the Solar Tables, is $+0''.20$. The effective correction to Le Verrier's longitude of perigee for the same epoch is $+6''.3$.

Calling these quantities δe and $\delta\pi$ respectively, we have the corresponding correction to the longitude :

$$\delta l = \frac{dl}{de} \, . \, \delta e + \frac{dl}{e d\pi} \, . \, e\delta\pi .$$

But

$$\frac{dl}{de} = \quad 2 \sin g$$

$$\frac{dl}{e d\pi} = -2 \cos g$$

where g is the mean anomaly.

Therefore,

$$\delta l = +0''.40 \sin g - 0''.21 \cos g.$$

Applying this correction to the comparison referred to above, we have (taking the mean of each three consecutive corrections for convenience) :—

Date 1900.	Residual Correction.	Date 1900.	Residual Correction
Jan. 9	−0″·27	July 20	−0″·53
Feb. 2	−0·25	Aug. 13	−0·62
26	−0·26	Sept. 6	−0·57
Mar. 22	−0·33	30	−0·60
Apr. 15	−0·42	Oct. 24	−0·66
May 9	−0·42	Nov. 17	−0·73
June 2	−0·40	Dec. 11	−0·65
26	−0·46	27	−0·73

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By the application of the corrections for eccentricity and longitude of perigee, the outstanding corrections become, therefore, corrections of a sensibly progressive character throughout the year under consideration. These progressive corrections arise doubtless from differences in the tables of perturbations given by Newcomb and Le Verrier respectively.

Photograph of the Spiral Nebula M. 33 Trianguli.
By Isaac Roberts, D.Sc., F.R.S.

The photograph of the spiral nebula M. 33 *Trianguli*, R.A. 1^{h} 28^{m}, Decl. 30° 7′ north, was taken with the 20-inch reflector on 1895 November 14, with exposure of the plate during 2 hours and 15 minutes, and the copy now presented is enlarged to the scale of 1 millimetre to 24 seconds of arc.

The nebula is N.G.C. No. 598, G.C. No. 352, h 131, Rosse, *Obs. of Neb. and Cl. of Stars*, p. 20; *Phil. Trans.* 1850, pl. 36, fig. 5, and 1861 pl. 36, fig. 10.

Sir J. Herschel (G.C. 352) describes the nebula as a remarkable object, extremely bright, extremely large, round, very rich, very gradually brighter in the middle with a nucleus, and resolvable.

Lord Rosse (references given above) has recorded 32 observations made between the years 1849 and 1862, and gives a marginal sketch. These make us acquainted with the difficulties encountered by the observers in their efforts to make intelligible, by descriptive matter and by drawings, an object having a structure so complex that no eye and hand, however well trained, could possibly delineate it.

The photograph shows the nebula to be a spiral with remarkable features. The nebula measures about 62 minutes of arc from *north following* to *south preceding*, and 35 minutes from *south following* to *north preceding*.

It will be observed that there are two large, very prominent, spiral arms, with their respective external curvatures facing north and south, and that the curves are approximately symmetrical from their extremities to their point of junction at the centre of revolution, where there is a nebulous star of about tenth magnitude with dense nebulosity surrounding it, and elongated in *north* and *south* directions. Involved in this nebulosity are three bright stars and several faint nebulous stars; the two arms also are crowded with well-defined stars and faint nebulous stars with nebulosity between them; and it is to the combined effect of these that the defined forms of the arms are due. Besides these two arms there are subsidiary arms, less well defined, and likewise trending towards the centre of revolution, and are constituted of interrupted streams of faint stars and nebulosity intermingled

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